Report: Central Valley Regional Water Quality Control Board, Surface Water Ambient Monitoring Program Tulare Lake Basin Annual Report: Fiscal Years 2002/2003 and 2003/2004

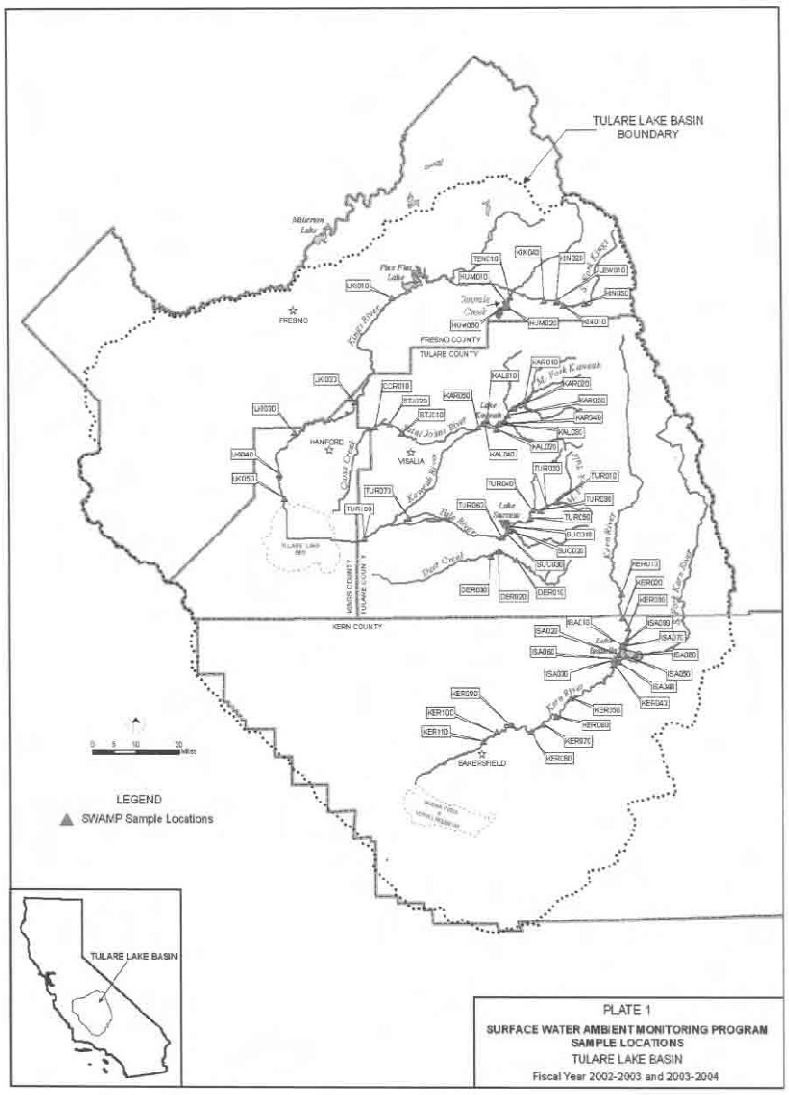
Watershed: Tulare Lake Basin

Sampling Period: Eight sampling events were conducted between September 2002 and May 2004.

KEY STATISTICS

Size of Tulare Lake Basin	*10.5 million acres*
Number of sites sampled	*60*
Number of constituents measured	*11*
Samples taken	*255*

Site Locations Map:



Report Objectives: To establish baseline water quality conditions from watershed management areas within the Tulare Lake Basin and determine if beneficial uses of surface water were not being supported and/or attained of Tulare Lake Basin Plan's inland surface water quality objectives.

Message: Resultsindicated dissolved oxygen (DO) and pHoccasionally felloutsideof the Tulare Lake Basin Plan's inland surface water quality objectives.Additionallyelectrical conductivity (EC), ammonia, and *E. coli*(a subset of fecal coliform) exceeded the inland surface water quality objectives in specific areas.Future

monitoring activities in the Tulare Lake Basin should evaluate baselines and potential sources of reduced DO as well as seasonally elevated pH and *E. coli*.

Table 1. Summary of Tulare Lake Basin's Analytical Results*

Tulare Lake Basin Plan's Inland Surface Water Quality Objectives (BPOs)	Watershed Management Areas									
	Kings						Kern	Tule	Kaweah	
	South Fork of the Kings River Tenmile Creek Hume Lake	Lower Kings River					Kern River Lake Isabella	Tule River Lake Success	Kaweah River Lake Kaweah	
Aquatic Life Beneficial Use										
Minimum Dissolved Oxygen (mg/L) †	9	7					8	7	7	
• Number of DO samples below required minimum BPOs / total number of DO samplesanalyzed	27/43	3/30					13/107	7/29	5/26	
pH Range	6.5 to 8.3	6.5 to 8.3					6.5 to 8.3	6.5 to 8.3	6.5 to 8.3	
• Number of pH samples outside the required BPO's pH range / total number of pH samplesanalyzed	5/52	6/31					64/116	11/29	7/26	
Drinking Water and Irrigation Water Supply Beneficial Uses										
Maximum Electrical Conductivity (uS/cm)†	100	100	200	300	200	300	450	175		
• Number of EC samples that exceeded the required BPOs / total number of EC samplesanalyzed	-	-	-	8/31	-	-	-	-		
Ammonia as Nitrogen (mg/L)^	0.025	0.025					0.025	0.025	0.025	
• Number of NH3-N samples that exceeded the required BPOS / total number of NH3-N samples analyzed	-	2/25					-	-	-	
Recreational Beneficial Use										
E. coli (subset of fecal coliform) (400 MPN/100mL)	400	400					400	400	400	
• Number of *E. coli* samples that exceeded the required BPOs / total number of *E. coli* samples analyzed	-	2/28					-	1/15	-	

- Results satisfied the Tulare Lake Basin Plan's Inland Surface Water Quality Objectives (BPOs).

* Results were interpreted from Attachment B of the Central Valley Regional Water Quality Control Board,Surface Water Ambient Monitoring Program Tulare Lake Basin Annual Report: Fiscal Years 2002/2003 and 2003/2004 (Report).

†Tulare Lake Basin Plan's Inland Surface Water Quality Objectives (BPOs) for EC and DO are designatedspecific values by stream reach.

^Attachment B of Report references ammonium as nitrogen, to have data placed in to Table 1 above and reflect the Tulare Lake Basin Plan's Inland Surface water Quality Objectives, ammonium as nitrogen had to be converted to ammonia as nitrogen.

Additional constituents were sampled, but are not shown on Table 1 because they were not discussed in the Report. These constituents include water remperature total kjeldahl nitrogen (TKN),nitrite/nitrate as nitrogen, total phosphorous (TP),and soluable phosphate.

What Is The Measure Showing?

The data gathered over a twenty-one month period provides information on inland surface water quality from September 2002 to May 2004. Results were compared to the Tulare Lake Basin Plan's inland surface waterquality objectives for dissolved oxygen, ammonia, electrical conductivity, pH, and *E. coli*(a subset of fecal coliform).

Aquatic life beneficial use has potential concerns in Tulare Lake Basin watershed management areas due to low dissolved oxygen and high pH. Additionally, surface water quality in the Lower Kings River has potential concerns foraquatic life, drinking water andirrigation water supply, and recreationalbeneficial uses.

Why is this information important?

The Tulare Lake Basin Plan'sinland surface water quality objectives were used to determine potential impacts to beneficial uses.Protection and enhancement of beneficial uses of water against water quality degradation is a basic requirement of water quality planning under the Porter Cologne Water Quality Control Act.

What Factors Influence The Measurements?

Land Use:Land use influences consist of foothill community development, recreation, industrial processes, irrigated agriculture, and livestock grazing.

Hydrology:The Tulare Lake Basin comprises the drainage area of the San Joaquin Valley south of the San Joaquin River. Essentially it is a closed basin since inland surface water drains north to the San Joaquin River only in years with well above average rainfall.

Technical Considerations:

- Fecal coliform and *E. coli* are only indicators of potential pathogens and do not necessarily identify an immediate health concern.
- Public report and fact sheet are available at: http://www.waterboards.ca.gov/centralvalley/water_issues/swamp/report_summary_sheet/index.shtml
- Sample collection was conducted by Regional Water Board staff with the exception of HumeLake, South Fork Kings River, and Tenmile Creek where volunteer monitors from the Friends of the South Fork Kings River provided assistance. Water samples were analyzed by Twining laboratories, Inc. and the University of California Davis, Limnology Laboratory.

References:

1. Data is available to the public in the report and through the California Environmental Data Exchange Network (CEDEN), information on CEDEN is available at www.ceden.org.
2. California Regional Water Quality Control Board Central Valley Region, Water Quality Control Plan for the Tulare Lake Basin, Second Edition 1995.
3. State Water Resources Control Board, Porter-Cologne Water Quality Control Act.